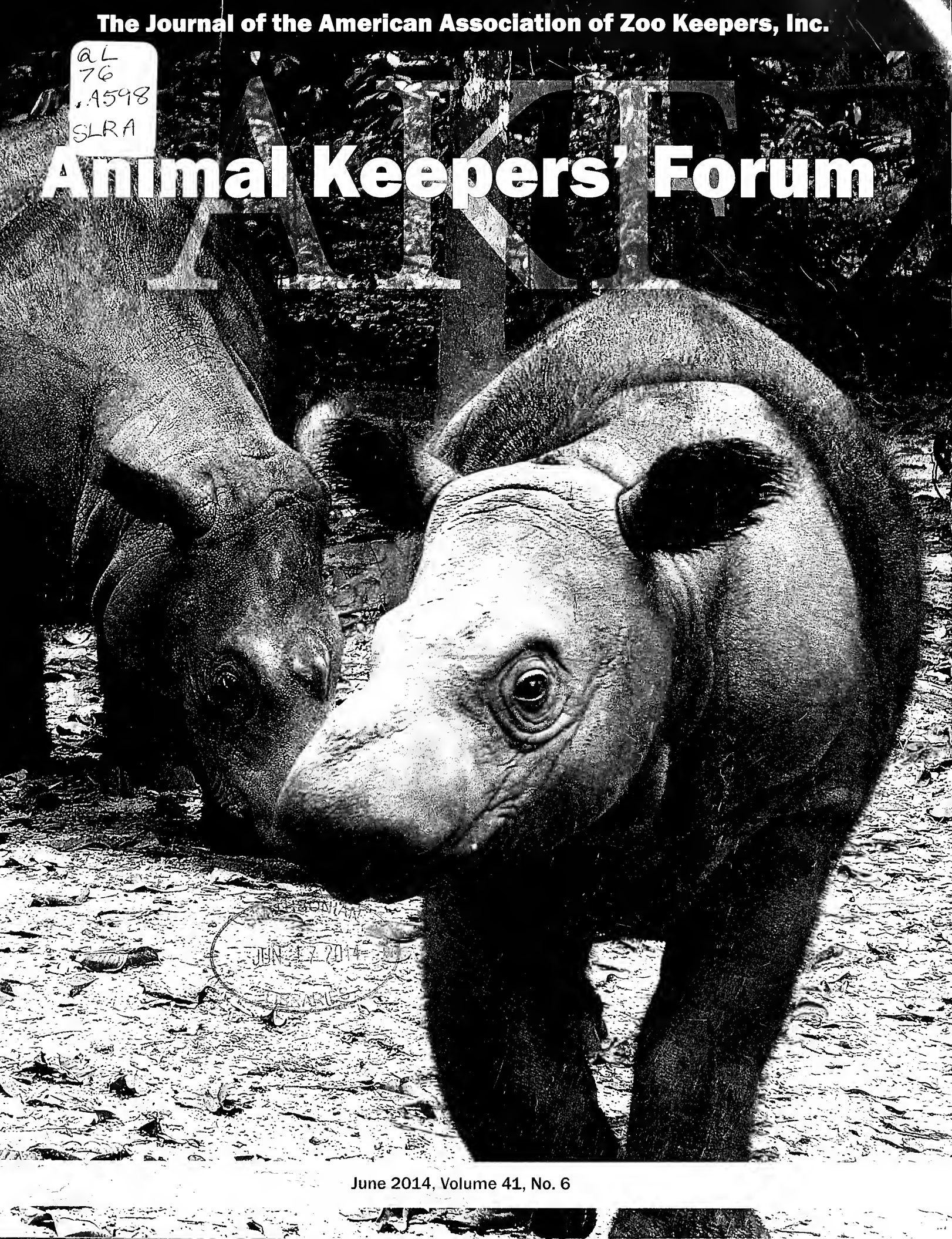


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The American Association of Zoo Keepers, Inc. exists to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.

About the Cover

This month's cover photo comes to us from Bill Konstant of the International Rhino Foundation. Andatu (in the foreground) is the first Sumatran rhino (*Dicerorhinus sumatrensis*) ever born at a managed breeding center in Indonesia. He is just under one-year of age in this photo. In 2011, his mother Ratu (in the background), a wild-caught female, mated with Andalas, who was born at the Cincinnati Zoo ten years earlier and was eventually sent to Indonesia's Sumatran Rhino Sanctuary, located in Way Kambas National Park. Andatu was born just a few minutes past midnight on June 23, 2012, following a 16-month gestation period. He weighed approximately 60 pounds at birth. On his first birthday, he tipped the scales at 800 pounds!

In addition to Andatu, Ratu and Andalas, the Sumatran Rhino Sanctuary is home to Bina and Rosa, two other wild-caught females. Although they have yet to produce calves, efforts to pair both females with Andalas will continue, as will attempts at assisted reproduction, which include semen collection and artificial insemination.

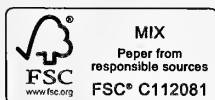
International Rhino Foundation is one of AAZK's three main partners in our flagship conservation program Bowling for Rhinos (the others are Lewa Wildlife Conservancy and Action for Cheetahs in Kenya). Together we are saving countless numbers of endangered species that share rhino habitat, so please join us as we look to surpass 5 million dollars in total funds raised during this 2014 BFR campaign!

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for **AKF**. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the Editor. The Editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or e-mail contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone (330) 483-1104; FAX (330) 483-1444; e-mail is shane.good@aaazk.org. If you have questions about submission guidelines, please contact the Editor. Submission guidelines are also found at: aaazk.org/akf-submission-guidelines/.

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ANIMAL KEEPERS' FORUM

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FROM THE PRESIDENT

Conservation is a broad term and has many applications. We use the term regularly to express the need to restore our biodiversity, environment, and natural resources when we speak with guests at our institutions. We also use this term when we describe the work that we do as an Association. As advocates for conservation and habitat protection, we use conservation messages daily. I recently had a conversation over dinner where a conservation message might have seemed like a non sequitur. It went something like this:

I was at a downtown steakhouse with some friends a couple of weeks ago and decided to strike up a conversation with the person sitting across from me. She was a friend of a friend and did not know anyone else at the table (there were eleven of us there). Being polite and engaging, I decided I would strike up some small talk. "Where are you from?," I asked. "Chicago," she replied, leaving me with a plethora of subject material regarding all of the great eateries in the Windy City. Chicago, after all is a great city with enormous cultural diversity, evident by their many outstanding restaurants.

After we chatted about the uniqueness of Chicago Dogs, deep dish pizza, and Italian beef sandwiches, emphasizing the pizza, of course, I proceeded with the next round of questions, not uncommon in these circumstances. "What kind of work do you do in Chicago?" She gave her reply almost as though the conversation might end there, as if it was the kind of job that those who worked in the field were very passionate about but those who didn't might not understand its significance. Speaking in an above average tone, in competition with the ambient noise of about a hundred other people striking up dinner conversations, she replied "I work in social services. I work with homeless people and help them reintegrate back into society. We help them develop the tools they need in order to adapt to life off of the streets." She looked at me as though she could easily predict the response "that's nice" which she had heard many times before. Instead, I followed up with another question which might have seemed off the wall (the non sequitur). "Are you familiar with the term *rewilding*?" I asked. Blank stare and head tilt. Uncertain how she might take the rest of the conversation, I repeated myself. "Rewilding, are you familiar with the term? I think that both of our passions have a lot in common." That got her attention. "What do you mean?" she replied, wondering where this was going. I continued, "You do what you do because you place value on the lives of those who are homeless and you believe that integrating them back into society not only benefits the individual but also benefits society. You believe in the restoration of an environment and that is what we call conservation.

Rewilding seeks to find solutions to the problems of habitat loss and fragmentation by restoring keystone species and apex predators. Habitats are unique and delicate ecosystems that could face collapse if key elements are removed. An excellent example of this is found in the reintroduction of wolves to Yellowstone National Park. In the early 1900s, wolves were eliminated from the National Park. During the next seventy years after the extirpation of wolves at Yellowstone, the loss of this apex predator had devastating results. No longer faced with any predator, the elk began to thrive and take over. Once forced to graze and move, the elk simply over-grazed and moved on, devastating the grasslands, aspen and cottonwood, creating erosion problems and affecting other species who depended on specific flora for their survival. Without the strongly competitive wolf population, coyotes changed their habits and expanded their range, suppressing the fox population, and affecting rabbit and rodent populations. It was as though the removal of wolves completely offset the delicate balance of the Lamar Valley ecosystem. When the wolves were returned to Lamar Valley, the delicate balance, once offset, was noticeably brought back to life. Coyote populations diminished, elk were forced to move and graze, and species once thought to be lost to the area returned.

Although Chicago and Lamar Valley have very little in common, the young woman sitting across from me understood where I was going with this amazing tale of the return of what was considered to be an unwanted species. That evening, she learned that ecosystems are delicate and that every species plays a vital role in maintaining that balance. Her passion, working to integrate the homeless away from the streets and back into society, is a form of restoring balance to a delicate ecosystem. Finding solutions for the homeless takes on a new meaning when you put it in this perspective.

In the short time that we chatted, I learned much about her work and the education and rehabilitation programs established to enable the homeless to get back on their feet. I learned about her passion for meeting the needs of a very unique and challenged population. I learned too, that conservation has a broader meaning that extends beyond the boundaries of my profession. In our separate passions, we both had much in common. And common ground is a great way to establish meaningful dialogue.

For more information about rewilding, there is a great Ted.com Talk entitled "For More Wonder, Rewild the World" presented by Journalist George Monbiot.

As always, I welcome your thoughts and input. E-mail me at bob.cisneros@aaazk.org, I would love to hear from you.



References

Monbiot, George (2013 July). For More Wonder, Rewild the World. Retrieved from http://www.ted.com/talks/george_monbiot_for_more_wonder_rewild_the_world



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The View from the Other Side of the Glass

Keeper on Display

By Dawn Kruger
Milwaukee County Zoo

It is Day Three of our Keeper on Display event, my first day on display. Will it live up to my vision? Only time will tell. How very weird to be actively watching the guests instead of frantically trying to complete my servicing of the exhibit so that we can get the animals back for the public to see. The guests come around the corner and are startled to see me sitting there. Looks of confusion cross their faces. The look slowly changes to humor as they read the "Keeper on Display" sign. At this point, our volunteer begins to explain why I am sitting on display. Surprisingly, the day flies by quickly. I spend most of my time answering questions about zoo keeping and our zoo. When there is a lull, I have the jaguars, lions or hyenas to entertain me from their exhibits. What started out as an uncomfortable feeling of being stared at turns into the joy of spending six hours with over three thousand of my closest friends.

This year for National Zoo Keeper Week (NZKW), the Milwaukee American Association of Zoo Keepers Chapter (MAAZK) set out to do what some might think was impossible. Convince an elusive and shy species, the zoo keeper, to volunteer their time to sit on display and act the role of an animal. The goal was to have a keeper sit in the vacant indoor cheetah display from 10am-4pm every day during NZKW. While on display, the keepers were available to answer questions for the public about zoo keeping. In addition, we scheduled training, enrichment and painting demonstrations throughout the day, utilizing the keeper as the animal.

The purpose for this event was multi-faceted. The first aim was to make the public aware of NZKW. In the past, MAAZK has celebrated NZKW but never included the public in our activities. Secondly, we wanted to educate the public about what it is to be a zoo keeper, inform the public about our educational background and demonstrate some of the duties we perform throughout our work days.



Finally, we wanted to collaborate with the Zoo's public relations department to increase media coverage through both local news and various social media venues. We also used the Keeper on Display event as a fundraiser to help raise money for conservation.

There were challenges to overcome with planning this event. I thought my biggest challenge was going to be convincing the MAAZK Chapter members to sign up to sit on display. They surprised me by filling in the sign-up sheet almost to completion at the first meeting about this event. In reality, the biggest obstacle I had to overcome was how to communicate with the guests so we could hear and answer questions. A well-placed dry-erase board, a volunteer, a wireless microphone and a speaker solved that problem nicely. The painting demonstration was also a bit of a challenge. Originally, the plan was to have the keeper paint through the keeper access door to the exhibit, but due to the door's placement, it would be difficult for the guests to see. In the end, we painted through the feed chute door in the front of the display using brushes on long poles.

I'm happy to say that the event exceeded my expectations. The public thoroughly enjoyed seeing a keeper on display. The local media came out for several interviews. We received a lot of positive feedback through social media posts. The managers at our zoo were thrilled by the attention the event was receiving. Our MAAZK Chapter members worked together as a team to accomplish a very intricate event. Many thanks to the MAAZK Chapter members, our Zoo Pride volunteers and the management of the Milwaukee County Zoo. The Keeper on Display event could not have been a success without the dedication and support of all of you. I encourage every Chapter to explore a unique way to celebrate this year's National Zoo Keeper Week!

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How Do You Introduce
Porcupines?

Very Carefully.



**Emily Johnson, Primate Keeper and
Sabrina Barnes, Primate Supervisor
Nashville Zoo at Grassmere
Nashville, Tennessee**

INTRODUCTION

Since early 2008, two male African crested porcupines (*Hystrix africaeaustralis*) have been part of the animal collection at the Nashville Zoo at Grassmere. They were the very first African crested porcupines at the Nashville Zoo. The porcupines, Kiazi and Ndulu, are brothers who had been together since their birth in May 2007. They had never had aggressive interactions with each other, other than some normal food defensiveness. This paper will outline the steps taken for the reintroduction of the two males after an injury to one male. We will also compare it to the introduction of one male and one female who had never previously met each other.

KIAZI'S MEDICAL CARE

On 8 November 2011 Kiazi was taken to the animal clinic for a routine exam. Radiographs and blood were taken. Kiazi was then given subcutaneous fluids in his right shoulder blade to assist in hydration during recovery. After the administration of fluids his skin tore, requiring additional anesthesia and multiple sutures.

A 2005 study by Agnew and Murphy (Agnew and Murphy, ZWPW 2005) suggested that skin fragility is common in this species. It may be a result of a genetically-based disease called Ehlers-Danlos Syndrome (EDS) or a similar syndrome. EDS is a syndrome that identifies a genetic defect in the body's production and metabolism of collagen.

To closely monitor his condition, Kiazi was held in a quarantine enclosure at the animal clinic. He remained in this enclosure for 60 days, during which he was anesthetized a total of 15 additional times for wound care.

During each of these 15 wound care procedures staples were used to draw the healing areas of his skin together to slowly close the wound, and each time Kiazi's wound was re-bandaged. An infant's Onesie was retrofitted and slipped over his head and around his torso to keep the bandages in place and prevent interference to the area. The intense care he was receiving required that he be housed alone. This left his brother, Ndulu, to be housed and exhibited alone at the zoo's porcupine exhibit. Zoo staff planned to reintroduce the porcupine brothers once Kiazi was completely healed.

How Do You Introduce Porcupines?

Very Carefully.

Emily Johnson, Primate Keeper and
Sabrina Barnes, Primate Supervisor
Nashville Zoo at Grassmere
Nashville, Tennessee

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Kiazi in the onesie that kept his bandages in place.
Photo by Emily Johnson

few shallow quills in the nose in the process. After 10 minutes they slowed and rested in opposite corners of the space (entire exhibit and access to holding area). After a few minutes of rest the chase would resume again, initiated by Ndulu. This situation went on uninterrupted for most of the day. Keepers hoped that the boys would eventually tire and begin to get along on their own but this never happened. They were separated for the night as keepers again did not feel comfortable leaving them overnight unsupervised.

Keepers continued to reintroduce the two over the next few days and interactions between the porcupines became less intense. Kiazi and Ndulu were able to be left together, even overnight, and would rest in their separate corners. However, the dynamic was definitely not the same as it had been. Previously the brothers were always physically close to one another, either eating diet or browse (one still defending his personal space from the other) and they always slept together side by side at night.

On day eight, both porcupines were moved to the same indoor holding stall away from the exhibit due to very cold overnight temperatures. The stall was able to be divided into two stalls if aggression issues persisted. After the move there were some aggressive interactions as the brothers settled into the smaller area. Chasing was observed throughout the day but did not appear to be worse than what had been observed previously and there were no injuries. The porcupines were able to settle down in opposite corners. Occasionally Ndulu would get up and chase Kiazi when either one was not preoccupied with eating, browse, or sleeping. They were left together overnight since they seemed to be able to tolerate each other at this time.

On the ninth day of reintroductions, the second day in the new "neutral territory," Ndulu was observed chasing Kiazi only once. Other than that there were no aggressive interactions. The brothers were sleeping in the same pile of hay when keepers entered the building. A few agitated vocalizations and quilling attempts were observed during the day but overall they were staying together and there was a lot less conflict over the next few days. What keepers saw was similar to the mild food defensiveness seen before the brothers were separated. The boys were even observed eating browse together. They remained in this harmonious condition throughout their stay in the new area.

When temperatures warmed up (day 15 of the reintroduction period) the porcupines were transferred to their exhibit holding area. There was no immediate interaction between them. Aside from some brief grunting, tail sniffing, and chasing, Kiazi and Ndulu had mostly neutral and positive interactions. They spent both day and night together peacefully. After this time no abnormal aggression was observed between them. Kiazi and Ndulu continued to interact with each other in much the same way as they had previous to their separation.

INTRODUCING 1.1 AFRICAN CRESTED PORCUPINES

On 13 June 2012 keepers were informed that the Crested Porcupine Yellow SSP had recommended that Nashville Zoo's two male porcupines were to be paired with females to breed. One male would leave Nashville Zoo to be paired and then one female would be brought in for the remaining male. On 20 September 2012 Needles arrived to be paired with Kiazi. Needles was quarantined at the animal clinic where she had two of the three connecting stalls.

On 24 October 2012 Needles was cleared from quarantine. Keepers brought Kiazi to the animal clinic and put him in the third empty stall. A mesh howdy door had been inserted into the shift opening between Needles' and Kiazi's stalls. That

REINTRODUCING 2.0 AFRICAN CRESTED PORCUPINES

On 5 January 2012 Kiazi was crated, anesthetized, and the last of the staples were removed from his wound. He was then transferred to exhibit holding to begin howdy introductions with Ndulu, who was on exhibit. The two had visual, olfactory, and some tactile howdy access to each other for a few hours through a chain-link door. There was little interaction between the porcupine brothers through the howdy door. They saw each other but made little effort to interact. There were no signs that made the keepers think that a more prolonged howdy period was needed.

With keeper and management supervision, the porcupines' normal diet was scattered for foraging and Ndulu was let into holding with Kiazi. Access to the exhibit was left open to give the porcupines space. After all of the diet was uneventfully consumed, the porcupines soon began to chase, bite at, and attempt to quill each other. Ndulu was the main aggressor. After 10 minutes with no lessening in levels of aggression (but no apparent injury to either porcupine) the introduction was ended for the day and the porcupines were separated. Keepers did not want to leave the porcupines together overnight with no supervision. Since there was no way to separate animals at the porcupine exhibit Ndulu was crated and transported to a nearby building for the night.

The second reintroduction attempt began the next morning. Kiazi was released into the exhibit and Ndulu was released into the holding area. They were separated by a chain-link door. There was little interaction between the two through the howdy door and nothing was observed at this time that made keepers wary of letting them together other than their encounter the previous day. The porcupines were left with howdy access for 30 minutes before the door separating the two areas was opened. Almost immediately Ndulu began chasing Kiazi around the exhibit. At times Kiazi would defend himself and Ndulu got a

afternoon keepers opened the shift door and allowed them to howdy for 20 minutes. Kiazi was immediately observed with an erect penis when he had visual access to Needles. Once Needles became aware of Kiazi she became very interested in him as well. They both pawed at the mesh howdy and Kiazi sniffed and licked Needles' paws. After 15 minutes of sniffing and spending time looking at one another nose to nose, Needles became very persistent at trying to bite at and pull the door open. Keepers tried to distract her from scratching at the door but were unsuccessful. After several minutes of her trying to get through the door, keepers slowly shut the shift door and ended the howdy. The fear was that she would break the door with her persistent biting and pulling. She was shifted out, the howdy door was taken off, and she was calm for the rest of the day. Taking into account all of the positive behaviors and interest in one another, it was decided to do introductions the next day.

Through Nashville Zoo staff experience and researching the AZA Porcupine Care Manual, it was believed that male and female porcupines were usually introduced without many problems. In addition, keepers wanted to utilize what we had learned with Kiazi and Ndulu by conducting the introductions on "neutral territory." Keepers were able to shift the porcupines around to

With future introductions of African crested porcupines, even ones who have previously been housed together, we will make every attempt to allow the porcupines to meet each other on neutral territory.

get each of the porcupines in stalls that were new to them. This way neither porcupine would be encroaching into the other's territory and they would meet each other for the first time on neutral ground. We felt that anything to help set the animals up for a successful introduction might as well be used.

Needles and Kiazi were physically introduced in the early afternoon on the day after the first howdy introduction. Kiazi was the first to approach Needles and was observed with both his penis and his quills erect. They met face-to-face with no aggression and also explored each other's stalls. They sniffed each other's genital areas and tails and Kiazi was observed licking Needles' front legs. After 20 minutes of these interactions, Kiazi made his first attempt to mount Needles but fell off. The pair spent most of the next hour following each other around the holds, eating some browse together, sniffing each other, and licking each other's mouths and front legs. One minor incident of aggression was observed when Kiazi got defensive over some browse, but it did not seem to faze Needles. An hour into the introduction Kiazi again attempted to mount Needles, whose tail and quills were raised up so Kiazi had easier positioning. He fell off but 10 minutes later (after more sniffing and licking) Kiazi

was able to more successfully mount Needles. Ejaculation and penetration were observed (in that order). Keepers continued to monitor the two but it was decided that they could be left together throughout the afternoon. Keepers checked on them several more times with no negative interactions observed. They were left together overnight and have been inseparable ever since.

CONCLUSION

We believe that changing the location of the introduction from established exhibit territory to a new neutral area seemed to remove much of the aggressive behaviors between Kiazi and Ndulu. We suspect that Ndulu no longer seemed to be threatened by Kiazi's presence or view it as an invasion into his territory. In addition, they were not separated every night, which eliminated the need to reestablish their dominance each morning. With future introductions of African crested porcupines, even ones who have previously been housed together, we will make every attempt to allow the porcupines to meet each other on neutral territory. This removes much of the potential for territorial defensiveness to exist and allows the animals to interact with plain interest and curiosity instead of feeling the need to defend their space. The 2008 Porcupine Care Manual also refers to introducing animals in neutral territory if possible, and if not then in the largest space available (AZA Porcupine Care Manual, P. 17). We would also give the porcupines more initial howdy time through a barrier and watch to see if they would interact more with each other. We might have gotten more insight as to how they would interact when they had full contact with each other. The successful introduction of Kiazi and Needles helps reinforce the importance of introducing on neutral ground.


Keepers at Nashville Zoo have enjoyed getting to know our porcupines better as they've spent time off exhibit in areas where we can observe and interact with them more easily. We have especially enjoyed watching Kiazi and Needles together, as they seem to be very fond of each other. On 23 February 2013 Needles gave birth to two porcupettes.

Along with keepers' new enjoyment of these rodents came a lot of appreciation and acquisition of knowledge. The purpose of this paper is to relate our experiences with introducing two different sets of porcupines and what we learned along the way. Our best recommendation is to introduce the porcupines on neutral territory. There were other factors at play but a neutral location seemed to make the difference when reintroducing the porcupine brothers.

ACKNOWLEDGEMENTS

Thank you Nashville Zoo veterinarians Dr. Heather Robertson and Dr. Margarita Woc Coburn for their excellent care in repairing Kiazi's skin tear and for reference resources provided for this paper; Mammal Curator Connie Philipp; Primate Keepers Rebecca Collins and Bridget Caldwell; any additional current or former Nashville Zoo veterinary and keeper staff, interns, and volunteers who were involved with Kiazi's medical care and husbandry surrounding the introductions.

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BOWLING FOR RHINOS

Striking Out Extinction One Pin at a Time



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DROPS IN THE BUCKET ADD UP

When there is a lot to be done, your personal conservation efforts can seem like just a tiny drop in the bucket. Changing human behavior one person at a time, particularly if it's an inconvenient change, can be a long process that requires patience and persistence. The same kind of determination comes into play when you're conducting a conservation fundraiser. However, the drops in the Bowling for Rhinos conservation fund bucket have really added up over the years. So much so that in 2014, National AAZK anticipates passing the 5 million dollars raised mark. (And we know a lot about buckets anyway- we're zoo keepers!)

The world had seen the black rhino population plummet from 65,000 in 1970 to only about 3,000 by 1987. Ever timely, the keepers at the Kansas City Zoo began working on a fundraiser to help in the conservation effort for this critically endangered species. By 1989, the AAZK board voted to make "Bowling for Rhinos" a nationally-sponsored annual event. Almost 25 years later we are still on a mission to "strike out extinction" through our professional organization's signature conservation project. To date, VOLUNTEERS from AAZK's ranks have raised \$4,821,986; less than \$200,000 shy of that \$5 million milestone. Amounts from a few hundred dollars to tens of thousands of dollars come in each year from approximately 75 of our 97 active Chapters. **THESE DONATIONS CLEARLY ADD UP.** Exactly \$3,750 could pay for one Indonesian Rhino Protection Unit's staffmember's salary for one year. A similar amount could fund radio collars or translocate a rhino to a new habitat. Just last year, 2% (\$3,426.22) of our 2012 grand BFR total went to Conservation Resource Fund recipient, "Rhino Remedy" who made an educational video that could turn the tide on rhino horn use in traditional Asian medicine. Walk forward with pride, AAZK members. We don't just support conservation, we are **SAVING A SPECIES.**

MOVING FORWARD

There are a number of resources available to AAZK Chapters to help them set their Bowling for Rhinos events up for success. We are working on a few more, and we'd love to hear from you on what you need. But here are a few to start you out:

- BFR flyers, sponsorship forms, artwork, and videos are available for download in the Members Only section of the AAZK website. The newest addition is a **BFR PSA courtesy of Jack Hanna of the Columbus Zoo!** Also newly available is the 2014 winning T-shirt design featuring all five species of rhinos (pictured on P. 170).
- Patty Pearthree also maintains a website of expanded BFR resources at www.azkbrf.org. Included is a very comprehensive report on Bowling for Rhinos from the 2011 National AAZK Conference. It is a must-read for any new coordinator.
- There is a Bowling for Rhinos discussion group on AAZK Online.
- There is also a BFR Yahoo Group you can join by e-mailing Barbie Wilson at rhinobarbie@hotmail.com.
- Our partners at Lewa Wildlife Conservancy, Action for Cheetahs in Kenya and the International Rhino Foundation have additional resources on their websites and post regular updates on social media. Are you friends with Andatu Rhino on Facebook yet?
- Are you following the American Association of Zoo Keepers on Facebook and Twitter? Be sure to link your Chapter social media outlets with our upcoming Bowling for Rhinos Facebook page, too!
- Take the time to view the Rhino Remedy video we helped to fund through the 2013 BFR Conservation Resource Fund- and share it! It's called, "Be Powerful!" <http://m.youtube.com/watch?v=mJOXSQTYtp8>



To purchase this t-shirt go to:
<https://www.aazk.org/shop/>



Rhino Champion Anna Merz passed away in 2013. If you ever had the opportunity to meet her, please send us your pictures and stories. We will be putting together a tribute at the Rhino Rally on September 9th at the 2014 National Conference.

BFR Conservation Resource Fund recipient, RhiNO Remedy has produced a video and a series of educational materials to stop poaching at it's source - the false belief in the medicinal properties of the horn. The translation from this image is "Be Powerful."

Poster: landscape



Special thanks to our Conservation Partner Bill Konstant from the International Rhino Foundation for providing these status updates for each of the five species of rhino. *Rhino letter image by Lauren Etkins, Philadelphia Zoo Keeper.*

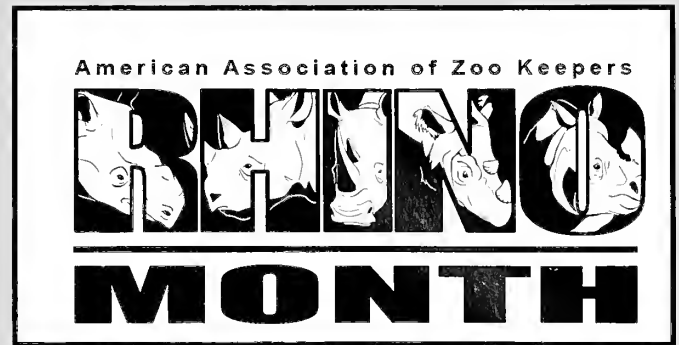
2014 RHINO RALLY AT THE NATIONAL AAZK CONFERENCE

There is a Bowling for Rhinos presentation session each year at the National AAZK Conference. However, in recent years we have also wanted a time to celebrate and promote our Chapter events - hence the annual "Rhino Rally." Last year at the North Carolina Conference we arranged a "swag exchange" where Chapters could exchange their leftover shirts/bags/etc for use in their own Chapter auctions. Thanks to all the participants, it was a great success. Whether you can attend or not, we would like to ask for your help to make this year's rally an even bigger success. Here's what we are thinking:

- We would like to compile all the "little" money-makers for events outside of what is charged for registration. Raffles, "RHINO" bingo, auctions - what do you do to bring in those extra bucks? **E-mail Patty and Wendy to tell us.** If you're going to the conference, we might ask you to run a mock fundraiser during the rally.
- **Wear** your Chapter Bowling for Rhinos shirt to the Rhino Rally if you are attending the conference. Show some spirit! We would love to do a group picture. The rally will be over lunch after the Bowling for Rhinos paper session on the first day.
- **Bring** your extra Bowling for Rhinos goodies to the Rhino Rally and participate in our swag swap.
- **Help** us honor the memory of Anna Merz. If you have any photos of her or specific stories/memories, please e-mail them to us. We will do a tribute at the Rhino Rally.
- **Celebrate** your success by sending us photos from your Bowling for Rhinos events. We are starting to archive them.
- **Recognize** your Chapter's unique identity. Send us your Chapter Bowling for Rhinos logo as a jpg attachment. (It doesn't have to be from your most current year - pick a favorite!) These logos will be made into a collage and the event photos will be incorporated into a slide show that will play at the Rhino Rally.

When the clock strikes midnight on January 1st, 2015 we will officially be in our 25th year of Bowling for Rhinos. Let's finish the first 24 years with a bang! Just keep doing what you are doing. Together we ARE making a difference. 🐘

Please feel free to share any BFR ideas or strategies you have with Patty and Wendy via e-mail as AAZK prepares for the 25th Anniversary in 2015!



Javan Rhino (Critically Endangered)

The final stronghold for the Javan rhino is Indonesia's Ujung Kulon National Park, where there have been no reports of poaching this century. Data obtained from video camera-trap studies conducted in 2011 resulted in an estimate of 35-44 individuals. A similar study in 2013 seems to indicate an increase to perhaps 50 individuals or more, but the results remain to be verified by independent analysis.

Black Rhino (Critically Endangered)

Overall, black rhino numbers continue to increase, albeit modestly. Over the past 20 years, they have essentially doubled from about 2,500 to more than 5,000 throughout the species' range in sub-Saharan Africa.

White Rhino (Near Threatened)

Poaching statistics out of South Africa suggest that 2014 will be as devastating a year for rhinos as 2013 was - perhaps 1,000 or more killed for their horns. White rhinos comprise the bulk of those killed, but blacks are also represented in the tally. With a total wild population of about 20,000, the white rhino is barely holding its own, births still about equal to deaths each year, but biologists believe that won't last much longer. The population will begin declining if the poaching rate persists.

Sumatran Rhino (Critically Endangered)

The most recent estimate for wild Sumatran rhinos is approximately 100 animals but, the truth is, that's a very soft number. The species is represented by three potentially viable populations in Sumatra - Bukit Barisan Selatan NP, Gunung Leuser NP, and Way Kambas NP. What appears to be a non-viable population, possibly no more than a dozen animals, remains on the island of Borneo, handfuls each in Sabah (Malaysia) and Kalimantan (Indonesia). Little data is available from Gunung Leuser, but there have been no documented reports of poaching in Way Kambas NP since 2006 or in Bukit Barisan Selatan NP since 2002.

Greater One-Horned Rhino (Vulnerable)

Greater one-horned rhino numbers continue to increase slowly despite poaching. Current estimates are more than 3,300 individuals in India and Nepal, with close to zero poaching in Nepal for the last few years and an average annual loss of a few dozen animals in the northeastern Indian states in which the species still occurs. Under the Indian Rhino Vision 2020 program, nearly two dozen animals have been returned to Manas National Park, 11 young have been born since the reintroductions began a few years ago, and six animals have been killed by poachers in Manas in the past two years. Plans are to begin reintroductions to the Burachapori Wildlife Sanctuary before the end of this year by translocating rhinos from Kaziranga National Park.

Professional Development Opportunities at the 2013 Orangutan SSP Husbandry Workshop

Josh Meyerchick, Keeper II Primates
Zoo Atlanta • Atlanta, GA

On 14-16 October 2013 the Orangutan SSP held its seventh annual husbandry workshop at the Los Angeles Zoo. With funding from the 2013 AAZK Professional Development Grant, I was fortunate enough to attend. The conference had several components to it including updates on the current status of both wild and captive orangutan populations, panel discussions, and individual presentations. The workshop also allowed for numerous networking opportunities both on the professional and informal level. Keepers, curators, conservationists, veterinarians, researchers, and more were in attendance.

The workshop opened up with reports by the Orangutan SSP committee members on population status, husbandry topics, and field visits. This was followed by the keynote presentation. The keynote speaker was Dr. Roberto Delgado, Ph.D., currently an American Association for the Advancement of Science (AAAS) Science & Technology Policy Fellow assigned to the National Science Foundation. His talk titled "Revisiting Island Differences in Orangutan Socioecology", discussed the ecological pressures orangutans face in differing geographic locations. Some of the concepts brought up involved population densities of the two species of orangutan, variation in vocalizations, as well as contrasts in social learning between geographically isolated populations.

All three days of the conference were filled with presentations covering a broad spectrum of topics. Some topics, such as the very entertaining talk on the role cheek pads play in reproduction for male orangutans, were more research oriented. Other presentations focused more on conservation of the species, as was the case with several talks on palm oil and its impact on wild orangutan populations.

Many of the talks from keepers presenting involved training techniques. One of the projects currently being worked on is the standardization of training cues. The presentation discussed the ongoing project of creating both visual and auditory cues that would be used by all institutions housing orangutans. With cue standardization, individual orangutans that are

being transferred from one institution to another will not have to relearn a new set of cues for behaviors they already know, eliminating redundancies. The first phase of this project was laid out with a set of eight standardized cues to be implemented across all institutions. The demonstrations of some of these cues by the individuals presenting turned out to be quite humorous.

Behavioral management was the topic of many presentations, including my own. Titled, "Prenatal Ultrasounds on Bornean (*Pongo pygmaeus*) and Sumatran Orangutans (*Pongo abelii*)" I discussed how Zoo Atlanta's staff monitored the health and growth of two fetuses from shortly after conception to birth. Both pregnant females received abdominal ultrasounds at least



The post-workshop trip included a visit to the Gibbon Conservation Center. Photo by Josh Meyerchick.



In addition to regular routine ultrasounds, we were also able to work with the Great Ape Heart Project (GAHP) to conduct fetal cardiac ultrasounds. The fetal cardiac image above shows the four chambers of Sumatran orangutan Pongo on 16 Nov 2012. Pongo was born two months later on 10 Jan 2013.



Presenting on abdominal ultrasounds at the 2013 Orangutan SSP Husbandry Workshop

once every other week for the duration of the pregnancy. From the images taken, veterinary staff was able to track development and monitor for any health concerns. These procedures were made even more important due to the fact that both females had complications with previous pregnancies which in one case, resulted in infant mortality. In addition to regular routine ultrasounds, we were also able to work with the Great Ape Heart Project (GAHP) to conduct fetal cardiac ultrasounds. The fetal cardiac image above shows the four chambers of Sumatran orangutan Pongo on 16 Nov 2012. Pongo was born two months later on 10 Jan 2013.

In addition to the paper presentations given, time was allotted for two separate panel discussion segments. The first roundtable discussion focused on health and nutrition. Panelists included: Nancy Lung, VMD, MS, Fort Worth Zoo; Debra Schmidt, Ph.D., Saint Louis Zoo; and Joe Smith, DVM, Fort Wayne Children's Zoo. This particular panel session was very helpful as it addressed several issues that I found to possibly be useful in the management of Zoo Atlanta's own orangutan collection. A wide range of topics were brought to attention from dietary content, constipation, and dry skin, to menopause and the effectiveness of certain supplements such as probiotics. In my opinion, this was one of the more helpful and informative sessions of the workshop. The other panel discussion, held near the end of the workshop, was dedicated to training issues. This was a problem-solving session where individuals brought up certain challenges that they had been facing when it came to training certain behaviors. Moderators for this discussion were: Dina Bredahl, Cheyenne Mountain Zoo; Nancy Bunn, Los Angeles Zoo; Megan Elder, Como Zoo & Conservatory; and Jennifer Gonsman, Los Angeles Zoo.

Attending the workshop allowed for the important opportunity to network with other professionals. I was able to meet with colleagues, share ideas, learn about other institutions, and build relationships both professional and personal. Icebreakers and evening events allowed for more informal settings in which we

were able to get to know each other. Even with the technology available to us today with social networking and listservs, being able to meet other professionals and colleagues in-person creates stronger ties and opens communication windows that "virtual" communication does not offer.

The final day, for those who chose to take the post-workshop trip, we visited the Gibbon Conservation Center in Santa Clarita, California. This facility, which was established in 1976, houses several gibbon species. While there, workshop participants broke up into groups to work on building enrichment, taking a guided tour of the facility, and helping to reprop habitats.

Overall, being able to participate in the 2013 Orangutan SSP Husbandry Workshop was a tremendous value to me. Funding provided by the 2013 AAZK Professional Development Grant enabled me to attend this conference. I encourage anyone looking to advance their career through any professional development courses, conferences, or trips; and have been actively involved in the AAZK community to apply for this grant. 🐘

Josh's attendance at the Orangutan Husbandry Workshop was sponsored in part by the AAZK Professional Development Grant. To apply for this grant, or to get information on any of our other grants, go to <https://www.aazk.org/committee/grants-committee/>

Cooperatively Coping and Flight Training a Peregrine Falcon with WNV, Monocular Blindness and a 'Can-Do' Attitude

*Rachael Rufino, Animal Keeper
CuriOdyssey at Coyote Point • San Mateo, California*

In 2012, CuriOdyssey received a non-releasable, rehabilitated peregrine falcon (*Falco peregrinus*) named "Horus" for its educational animal collection. Despite a slew of misfortune, "Horus" has demonstrated what can be accomplished by simply living in the moment. In 2005, Horus was found as an orphaned chick. He was rehabilitated at the Ojai Raptor Center (ORC) where he tested positive for West Nile Virus (WNV). As is the case with most infected birds, Horus did not show signs of illness and was still deemed a good candidate to be released. He was placed in a falconry program where he trained to hunt for two seasons with a local falconer. Shortly before Horus was to be released, he was found one morning with a corneal ulcer in his right eye. It was suspected the he may have been startled and flew into the side of his enclosure. After losing sight in this eye, Horus was considered non-releasable by a veterinarian and was used for educational purposes at ORC. This paper will discuss the challenges and successes of Horus' training since his arrival to CuriOdyssey, and how understanding the species and the individual can make all the difference.

Upon his arrival to CuriOdyssey, he appeared to be very congested at the time and with each breath the skin around his nares would fluctuate. Under anesthesia a substantial amount of debris was removed from his nasal cavity. Veterinarians suspected this may be a side effect of WNV or damage sustained from his injury while at ORC. Because of this, Horus' nares would have to be cleared on a bi-monthly basis while he was restrained for regular talon and beak trimming, also known as coping.

He was assigned a primary trainer with the following training goals:

1. To be used for onsite and offsite programs.
2. To reduce the amount of time he would be restrained by allowing us to cooperatively cope his talons.
3. To fly on and off stage, when cued, during wildlife presentations.

Horus, peregrine falcon at CuriOdyssey. Photo by Rachael Rufino

APPROACH

Horus is trained approximately four days per week. A whistle is used as a bridging stimulus, and items from his regular diet used as reinforcement. The goal to use him as an education animal was achieved shortly after he arrived because he had already participated in education programs at ORC.

The second goal, to cope Horus with his cooperation, began with desensitizing him to being touched. Initially, Horus was very vocal and would constantly try to bite and talon anything that came near his body. Because of his reactive personality and to



decrease the risk of aggression toward the trainers, he was desensitized to the touch of a feather rather than our bare hands. The verbal cue, "touching" was said right before each touch. Horus was bridged and reinforced for not having physical reactions toward the feather that would touch him. When he was consistently calm during these training sessions, the feather was phased out and one finger was used. Light toe, ankle and keel touches evolved into Horus having his toes lifted off of the glove and anklets manipulated regularly. Eventually, talon clippers were held to each of his toes and within a few sessions, they were being trimmed as he sat calmly on the glove. Horus is now only restrained to have his beak coped and nares cleaned.

Training Horus to fly on stage was the last and most challenging goal. This behavior was also the most enriching because it provided exercise and could take place indoors or outdoors in the backfield. Although the field is somewhat spacious and flat, it is also very distracting. Wild turkey vultures, ravens, hikers, bikers and airplanes tend to distract Horus from flight training.

Horus began flight training in the field from a perch to the

primary trainer's glove. The perch was constructed from a sawhorse, AstroTurf® and zip ties. We used only a physical cue, a raised glove, to signal him to fly. During outdoor flights a creance and a drag were used to prevent fly-offs. After being placed on the perch, Horus was asked to perform 1 ft. "flights" to the glove. He was initially baited to the glove to perform this behavior. The flight distances increased to 30 ft. in the field. Two months later this behavior was reintroduced inside CuriOdyssey's theater. Horus was asked to perform 1 ft. flights again, which increased to 12 ft. onstage. During this time Horus was introduced to having two trainers at once for glove-to-glove flights. Horus was trained to fly on a creance from a keeper's glove backstage and land on the glove of the keeper onstage. He would exit the stage by flying back to the keeper behind the scenes. Horus was more consistent flying onstage than offstage; the keepers speculated this was a result of his monocular blindness. Space was limited when he flew off requiring him to gauge how much space he had on his right side. Temporary adjustments were made to provide a larger flying space which resulted in him flying more readily offstage. Once he was flying offstage consistently, the space was reverted back to its original width and there was no change in his offstage exit consistency.

Horus the peregrine falcon at CuriOdyssey appears ready and willing to train each day. *Photo by Rachael Rufino*





An effort was made to have an audience as often as possible during training sessions. This allowed Horus to be desensitized to performing behaviors in front of people from the start, lessening the time it would take from "mastering" a behavior during training to performing it in a program. In addition, we believed that Horus would be less stressed when surrounded by people because it did not necessarily mean that he was going to be caught up and restrained.

Once Horus became consistent during training sessions, a variable schedule of reinforcement was applied to maintain trained behaviors. At times, he would be asked to perform a behavior or a variety of behaviors before receiving a bridge. He would also receive several pieces of reinforcement rather than just one piece for a well-executed behavior or multiple behaviors. This helped maintain his interest because training sessions would be variable.

MOVING FORWARD

Training Horus has been so successful that behaviors in addition to the three main goals have been implemented. Desensitization to touching has led to Horus sitting calmly while his entire foot is lifted off of the glove and held for five seconds. This has been useful for programs when keepers describe how large falcon feet are for their body size, and make his talons more visible when lifted off the dark colored leather glove.

Another behavior was established more from necessity than for aesthetic reasons. Animal keepers had noticed that due

to Horus' high-strung personality, he became very vocal and flighty whenever they approached him in his mew. The decision was made to station-train Horus so that he would fly to a designated platform and wait to be picked up. His verbal cue was "station," with a simultaneous physical cue: a fist at the trainer's chest. While the permanent platform was being constructed, a temporary station was used- a perch wrapped in AstroTurf®. Horus took to stationing almost immediately. The challenge came when his temporary station was removed and his permanent station was introduced. The new wooden platform is seven inches in diameter, covered with a daisy mat and is attached to the frame of his mew by wall-hanging cleats. Additional cleats are drilled in the mew so that when his perching is rearranged, the platform can be reattached elsewhere for him to access. Horus had difficulty separating the old station from the new station, despite the old one being removed. After taking a couple weeks off from station-training, it was reintroduced with the new verbal cue, "perch," and a new simultaneous physical cue: 3 two-finger taps on the platform. Horus re-learned how to station within two training sessions and continues to be very consistent with this behavior.

The next behavior we would like Horus to learn is opening his wings on cue for programs. This behavior has been established in another CuriOdyssey education raptor, which may help serve as a model for creating this training plan.

CONCLUSION

There is no doubt that Horus has accomplished a lot in less than two years at CuriOdyssey. Patience and consideration of his



physical restraints and personality have helped him succeed in performing a number of behaviors, allowing him to be a more effective and impressive animal to guests. More importantly, Horus' stress levels during coping and human interactions have greatly improved as he participates in his own healthcare. Horus continues to move forward with his training program and is an excellent animal ambassador at CuriOdyssey.

ACKNOWLEDGEMENTS

Special thanks to all CuriOdyssey Wildlife staff, the Ojai Raptor Center, and Horus' falconer, Thomas Kaiser. 🐾

PHOTOS

Opposite page: Horus' trainer copes his hallux with his cooperation. Photo by Ann Domm

Above top: Full foot lifts for programs have been an added bonus of desensitizing Horus to being touched. Visitors enjoy seeing a raptor foot off the glove and the talons are more visible this way. Photo by Ann Domm

Above bottom: Cooperatively touching Horus' keel is a quick way to assess his body condition. Photo by Ann Domm

Right: Horus eats chick during flight training in a field. He flies from a sawhorse to his trainer's glove, while attached to a creance and drag. Photo by Rachael Rufino

BHC Comments by Beth Stark-Posta

Congratulations to this team of keepers and trainers for making a positive difference in a bird's life. Training an animal to voluntarily participate in its own care can go a long way in ensuring great welfare. Horus has not only been trained to accept good medical care, but also has been given opportunities to make choices in his training, which likely gives him a sense of control over his day. This is a great example of how training can help with animal husbandry and medical care, and can be a good source of enrichment when animals are learning new behaviors. Thank you for sharing your Training Tale with us!

We want to hear your Training Tales – the good, the bad and the fabulous!

Please submit your "Training Tales" and experiences in operant conditioning to share with *Animal Keepers' Forum* readers. This opportunity provides a convenient outlet for you to exhibit your training challenges, methods and milestones with the AAZK member network. Please submit entries based on the following guidelines:

- a) Submit a brief description of a training project at your facility. These can be 500 words or less, in text or bullet points – it can be longer (up to 1000 words); however, short and simple descriptions with a few images are just as perfect. Details should include the following:
 1. Define the training goal (what did you try to do and for what purpose?)
 2. List important steps (How did you do it – include plans that changed along the way/what worked & what didn't work)
 3. Timeline used (how long did it take)
 4. Tips you learned along the way
- b) Include 3-5 digital photos that clearly depict the animal in the learning process or performing the desired goal (provide photo caption and photographer of each image). Photos need to be 300 dpi and at least 1200 x 1800 pixels.

Please send entries or questions to:

Kim Kezer at kkezer@zoonewengland.com or Shane Good at shane.good@azk.org (use Training Tales Submission as the subject).





The AAZK Board and Staff would like to thank the Chapters that sponsored the *Animal Keepers' Forum* in 2014 by donating to the AKF during their Chapter's re-charter. Sponsorships like these make it possible to provide you quality membership benefits like the newly improved AKF while we do our best to keep your membership rates as low as possible. Thanks to the following Chapters that donated in 2014:

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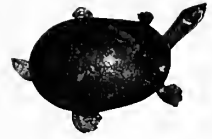
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